

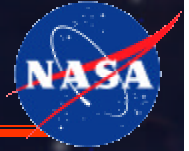
Marshall Space Flight Center



Strategic Resource Planning

***Art Stephenson
December 19, 2000***

MSFC Vision (2004-2006)

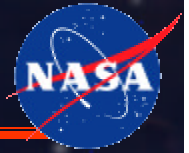


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- **Continuing key support to NASA's top 2 priorities**
 - **#1 Flying Shuttle safely (operations and upgrades)**
 - **#2 Completing *ISS* assembly and performing breakthrough microgravity science**
- **Leading NASA's #3 priority (No.1 Development Program)**
 - **Space Launch Initiative (Earth-to-Orbit (ETO) 2nd Gen)**
 - **3rd Generation ETO and Advanced In-Space Transportation**

Key Role in NASA's Top Priorities

MSFC Vision (2004-2006) *continued*

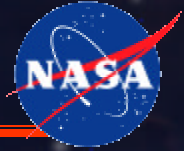


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- **Providing large optics manufacturing technology in support of 4 enterprises (Space Science, Earth Science, Human Exploration and Development of Space, Aero-Space Technology)**
- **Providing specialized support to Space Science and Earth Science enterprises (fixed level of civil servants)**
- **Providing key Agencywide functions (e.g., Payroll, Integrated Financial Management Program, NASA Integrated Service Network)**

Key Success Strategy: Partnering

Key to Success: Teamwork/Partnerships/Collaboration



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Current National Partnerships

- **NASA Centers (leader/follower)**
- **Air Force (Space Transportation/Propulsion/Optics)**
- **Industry (Space Transportation)**
- **Navy (MAGLEV)**
- **National Space Science and Technology Center
(6 Alabama Universities Plus...)**
- **National Center for Advanced Manufacturing
(University of New Orleans)**
- **Commercial Space Centers (Microgravity Science)**
- **National Institute of Standards and Technology
(Large Optics Metrology)**

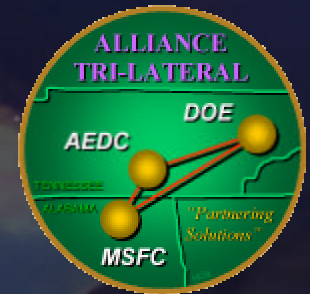
Key to Success: Teamwork/Partnerships/Collaboration continued



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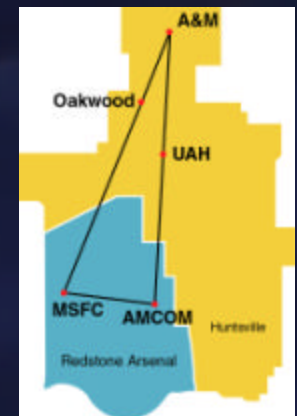
Current Regional Partnerships

- Tennessee Valley Economic Corridor
- Tri-lateral Alliance
- Southern Technology Council (15 states & Puerto Rico)
- Education Resource Centers (6 states)
- Tennessee/Alabama/Mississippi/Louisiana Delegations



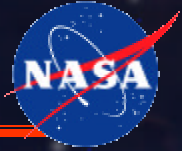
Local Partnerships

- U.S. Army Aviation and Missile Command
- Army/NASA Virtual Innovations Lab
- University of Alabama, Alabama A&M, Oakwood College



Key Success: Leverage other's \$, People, and Facilities

Universities Working with MSFC



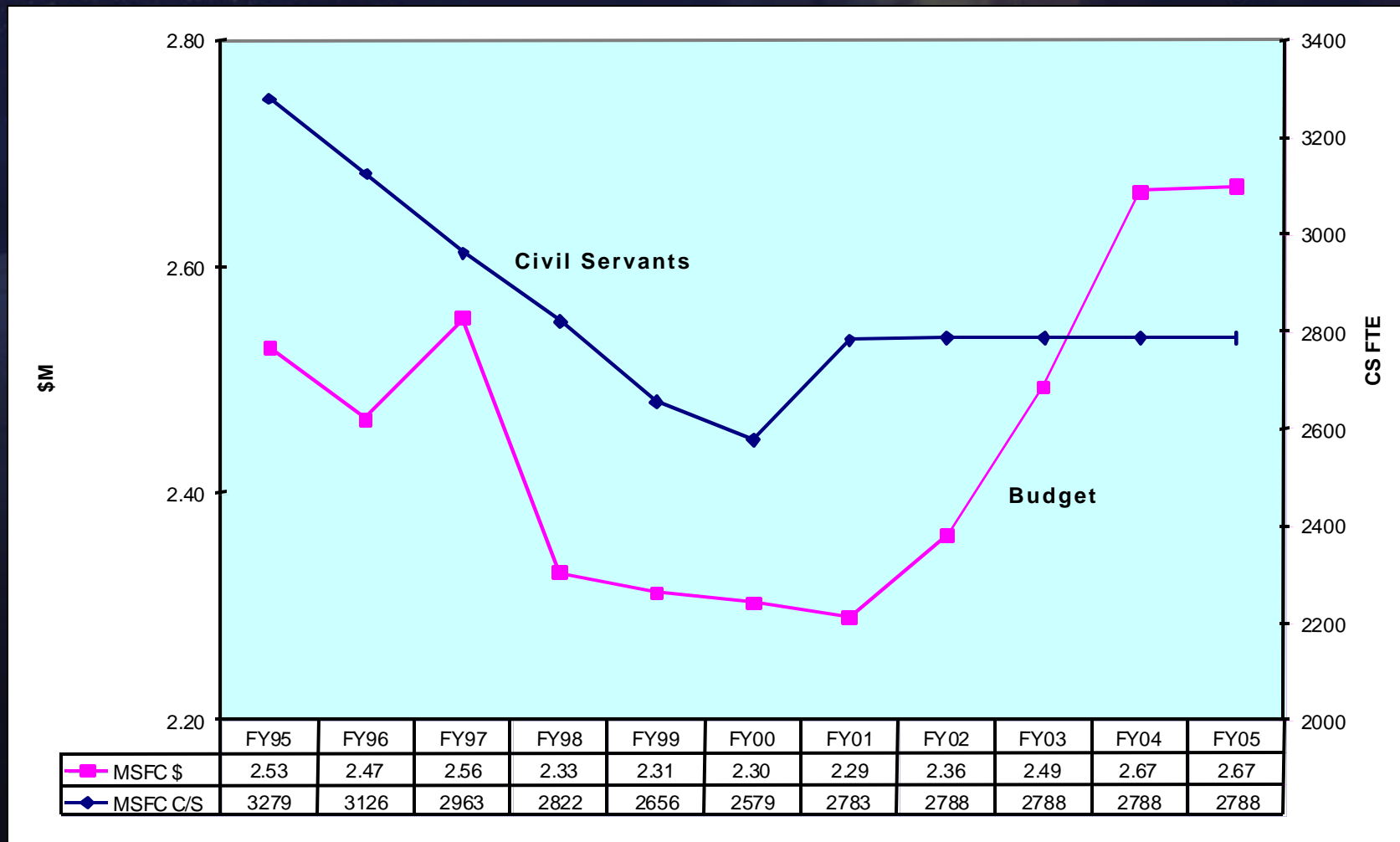
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Directorate	Number of Universities	Activities
• Space Transportation	54	2 nd and 3 rd Generation propulsion and vehicle technologies
• Flight Projects	19	Chandra, ISS hardware & software modeling and assessment, Crew aids
• Science	160	NSSTC, Microgravity, Gravity Probe – B, Space Science, Space Optics
• Engineering	24	TVC, Orbiter Upgrades, Dynamic Structural Models Meteoroid/Debris Hazard
Total	257	192 Different Universities

Budget & Workforce Profile



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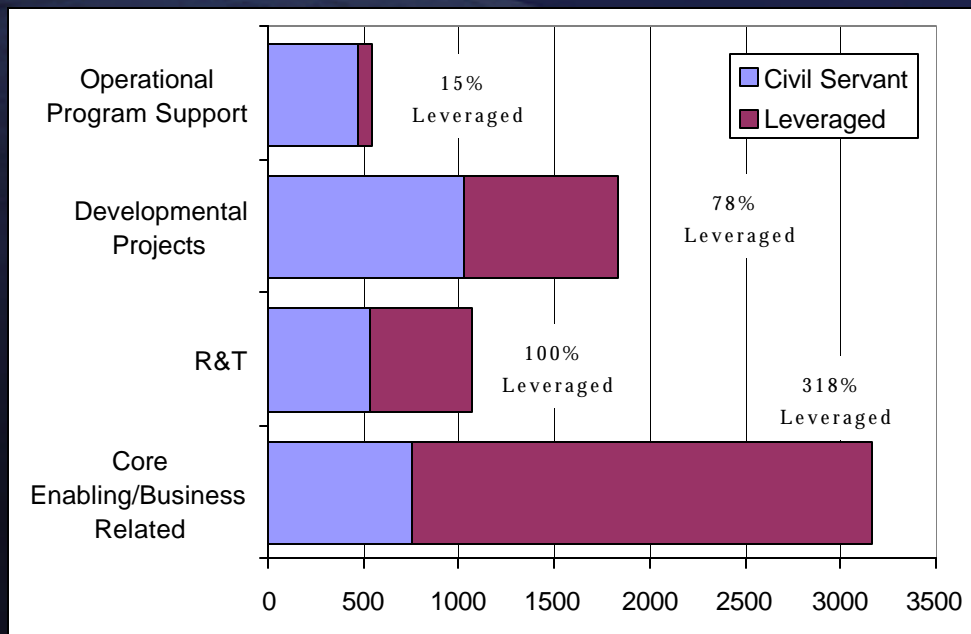
Operating budget expected to increase by 15% FY01 – FY05 While workforce remains constant

MSFC Workforce Leveraging Profile



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- MSFC has aggressively employed alternative workforce
 - IPAs, Institutes, University Affiliates
 - Support Contractors, Collaborations/Partnerships



Operational Program Support
Project Managers/Engineers
Leveraging primarily by Contractors

Developmental Projects
Engineers and Project Managers Leveraging
primarily by Industry Partners, Government
Partners, and Contractors

Research & Technology
Researchers/Scientists/Engineers Leveraging
primarily by Institute (NSSTC), IPA, University
Affiliates, and Contractors

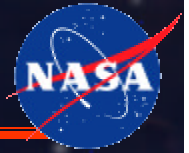
Core Enabling/Business Related
Business Professionals/Administrative/Clerical
Leveraging primarily by Support Contractors



Center Operations Directorate Examples

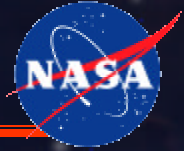
	<u>Civil Service</u>	<u>Contractor Support</u>
• NASA Automated Data Processing (ADP) Consolidation Center (NACC)	1	70
• NASA Integrated Services Network (NISN)	6	383
• NISN Russian Support	1	17
• Outsourcing Desktop Initiative for NASA (ODIN)	2	140
• High-Definition Television (HDTV)	1	2
• Equipment Calibration	1	20
• Facility Ops & Maint (EG&G)	4	250
• Propellant Systems	3	80

MSFC Workforce Strategy



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- **Leverage NASA and external partnerships**
- **Continually assess and provide civil service FTEs required to fly Shuttle safely**
- **Transition some civil service FTEs from *ISS* to Advanced Space Transportation over time**
- **Move civil service**
 - **More toward research, technology, development**
 - **Less in Operations**



- **Increase contractors, Interagency Personnel Agreements (IPAs), university participants**
- **Train workforce - particularly in project management and systems engineering**
- **Provide workforce with the right facilities, equipment, and tools**
- **Hire/Buyout to solve skill mix mismatch and add diverse viewpoints (particularly industry experts)**



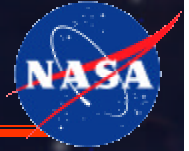
- **Assumption: Currently, MSFC is challenged by limited FTEs and funding**
- **Strategy:**
 - **Last year we delayed Voluntary Protection Program (VPP) and full scope ISO certification**
 - **Partnering to spread workload**
 - **Through the current SLI competition, size the job to fit resources (e.g., cancel X-programs?)**



- **ISS - Adjust schedules to fit resources**
- **Microgravity Program – Defining program now**
- **Non-Government Organization (NGO) – Developing approach/plan now**
- **Integrated Financial Management Program (IFMP) – used lessons learned to develop schedule**

Balance FTEs and work by June 2001

MSFC Strategic Research and Technology Facilities



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- Propulsion Research Laboratory

- Collaborative Engineering Centers

- 3rd Generation Thermal Protection System Blend Facility

New laboratories that enable breakthroughs in technology

New facilities that foster collaboration and team-level investigations

New facilities capable of safely handling sophisticated and potentially hazardous research

New and extended partnerships with academia and industry establishing National Research Center

Transition operational responsibilities to offsite locations, Non-Government Organization

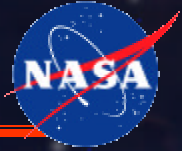
- Advanced Composite Structural Development Facility

- Nanomaterials Laboratory

- Virtual Reality Laboratory

- Cryogenic Structural Test Facility

Critical Issues



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- **Ability to effectively leverage partner contribution**
- **Skill mix management**
- **Downsizing from *ISS* program shifting to Space Transportation**
- **Aging facilities (NASA average 32 vs. MSFC 37 years)**
- **Requirement for new and different facilities**
- **Large Optics partnering in facility/equipment support**